Air Force SBIR **Impact**

Compact Anti-Jamming GPS Antennas

Company:
Toyon Research Corporation

Location:
Goleta, CA

Employees:
35

President:
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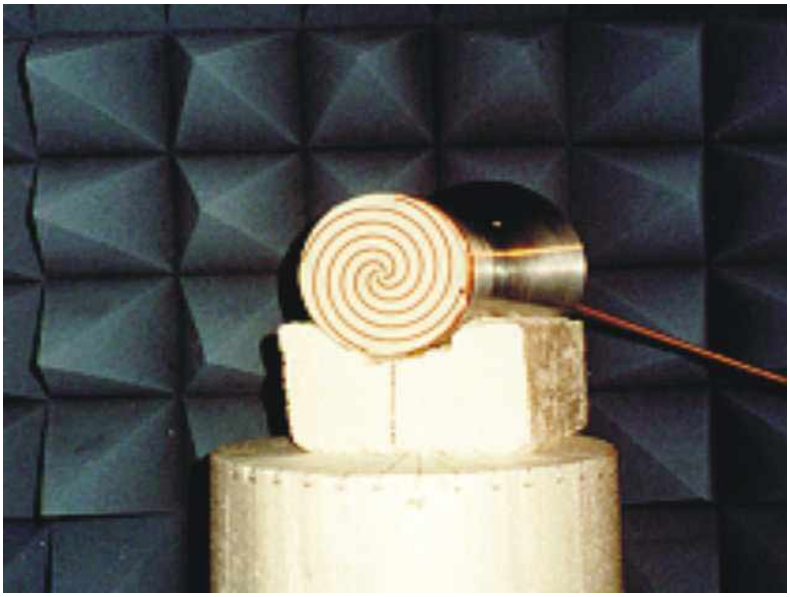

Toyon's anti-jamming GPS antenna during anechoic chamber pattern testing.

Air Force Requirements:

With the increased reliance of aircraft and weapons on GPS for navigation, jamming of GPS signals has become a threat to the effectiveness of Air Force systems. To address this threat, the Services have been developing phased array antenna systems capable of enhancing GPS reception in the presence of jamming. These phased array systems require considerably larger apertures than are currently available for the GPS antenna. Installation of these antennas would be very expensive because of the need to alter the airframes. Also, because of their complexity, these anti-jam antenna systems will have increased manufacturing costs. The Air Force has a need for cost-effective antennas that can mitigate the jamming of GPS receivers and fit into the current GPS antenna form factors.

SBIR Technology:

Toyon Research Corporation, working under an SBIR contract, developed a small, reconfigurable GPS antenna. This new antenna represents a fundamentally different approach relative to conventional anti-jam (AJ) GPS phased array systems that have been developed over the last several years. The Toyon approach requires only a single antenna to provide anti-jamming benefits similar to those of a phased array. The antenna element can be designed to fit into current GPS antenna apertures. This technology will allow the Air Force to bring anti-jamming GPS capability to platforms previously considered too small to support a reconfigurable antenna.

For more information on this story, contact Air Force TechConnect at 1-800-203-6451 or at www.afrl.af.mil/techconn/index.htm

Company Impact:

The development of this anti-jamming antenna technology has led directly to other SBIR programs. The first is a recently begun Navy Phase II SBIR to develop an antenna for the Joint Standoff Weapon (JSOW) that will counteract jammers. Another is an Army Phase I SBIR in which Toyon will develop an adaptive antenna to mitigate the effect of jamming on handheld GPS receivers. In addition, Toyon is funding an internal effort to demonstrate the feasibility of this technology for commercial wireless communications in the PCS and wireless LAN markets.

Company Quote:

"SBIR funding has allowed Toyon to advance this technology from paper sketches to demonstrated capability. The antenna systems developed using SBIR funding show promise in aiding the Air Force in its mission, as well as providing a valuable commercial opportunity for Toyon Research."

Dr. Michael L. VanBlaricum
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SBIR

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AF Topic# 96-185
Sec. Rev.# AAC/PA 01-269
Impact Story IS#26.0 – 06/01